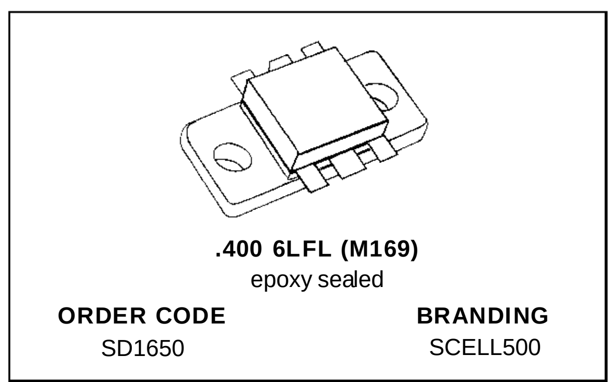


SD1650

RF & MICROWAVE TRANSISTORS
CELLULAR BASE STATION APPLICATIONS

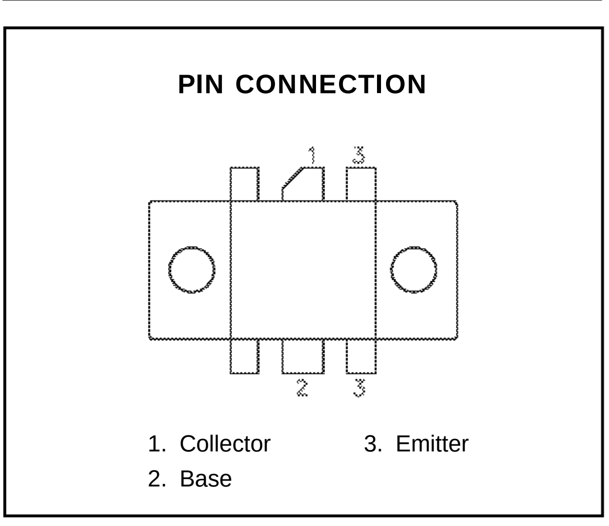
- REFRACTORY/GOLD METALLIZATION
- DOUBLE STEP INPUT/OUTPUT MATCH
- 850-960 MHz CLASS AB LINEAR
- COMMON EMITTER
- P_{OUT} = 60 W MIN. WITH 7 dB MIN GAIN



.400 6LFL (M169)
epoxy sealed

ORDER CODE	BRANDING
SD1650	SCELL500

PIN CONNECTION



1. Collector
2. Base
3. Emitter

DESCRIPTION

Designed for 900 MHz cellular radio base station applications, the SD1650 exhibits high collector efficiency with excellent thermal characteristics. Double-section internal input/output matching result in terminal impedance levels easily handled by the circuit designer.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	28	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	10	A
P_{DISS}	Power Dissipation (+25°C)	175	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	– 65 to +150	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.5	°C/W

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

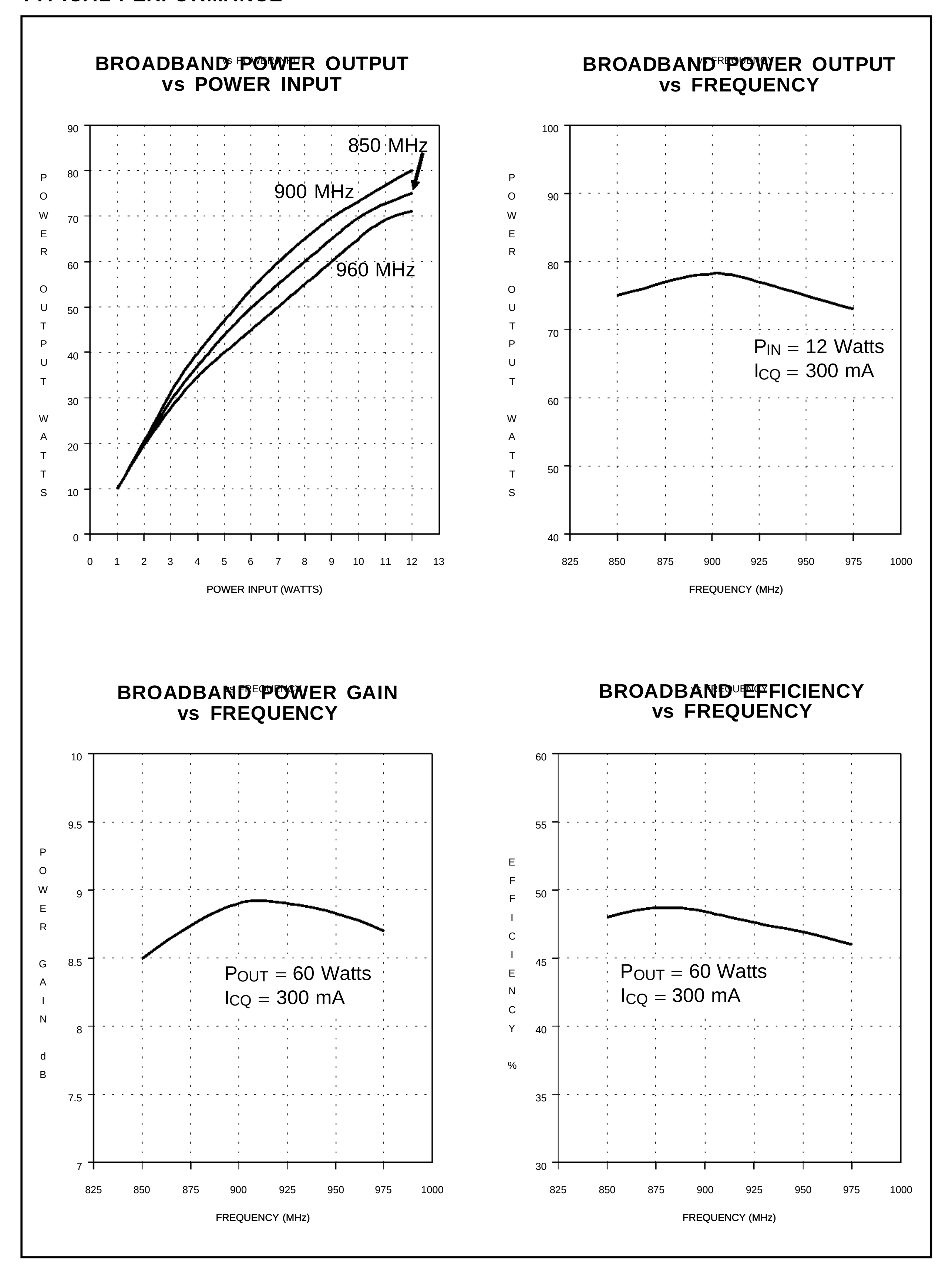
STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 50mA		60	—	—	V
BV_{EBO}	I_E = 20mA		3.0	—	—	V
BV_{CES}	I_C = 100mA		60	—	—	V
BV_{CEO}	I_C = 100mA		28	—	—	V
I_{CEO}	V_{CE} = 24V		—	—	10	mA
h_{FE}	V_{CE} = 5V	I_C = 6A	20	—	200	—

DYNAMIC

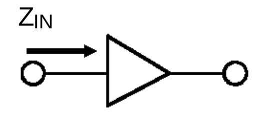
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 900 MHz	P_{IN} = 12 W	I_{CQ} = 300 mA	60	—	—	W
η_c	f = 900 MHz	P_{IN} = 12 W	I_{CQ} = 300 mA	45	—	—	%
G_P	f = 900 MHz	P_{IN} = 12 W	I_{CQ} = 300 mA	7	—	—	dB
VSWR	f = 900 MHz	P_{IN} = 12 W		3:1	—	—	—

TYPICAL PERFORMANCE

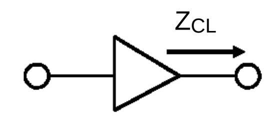


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

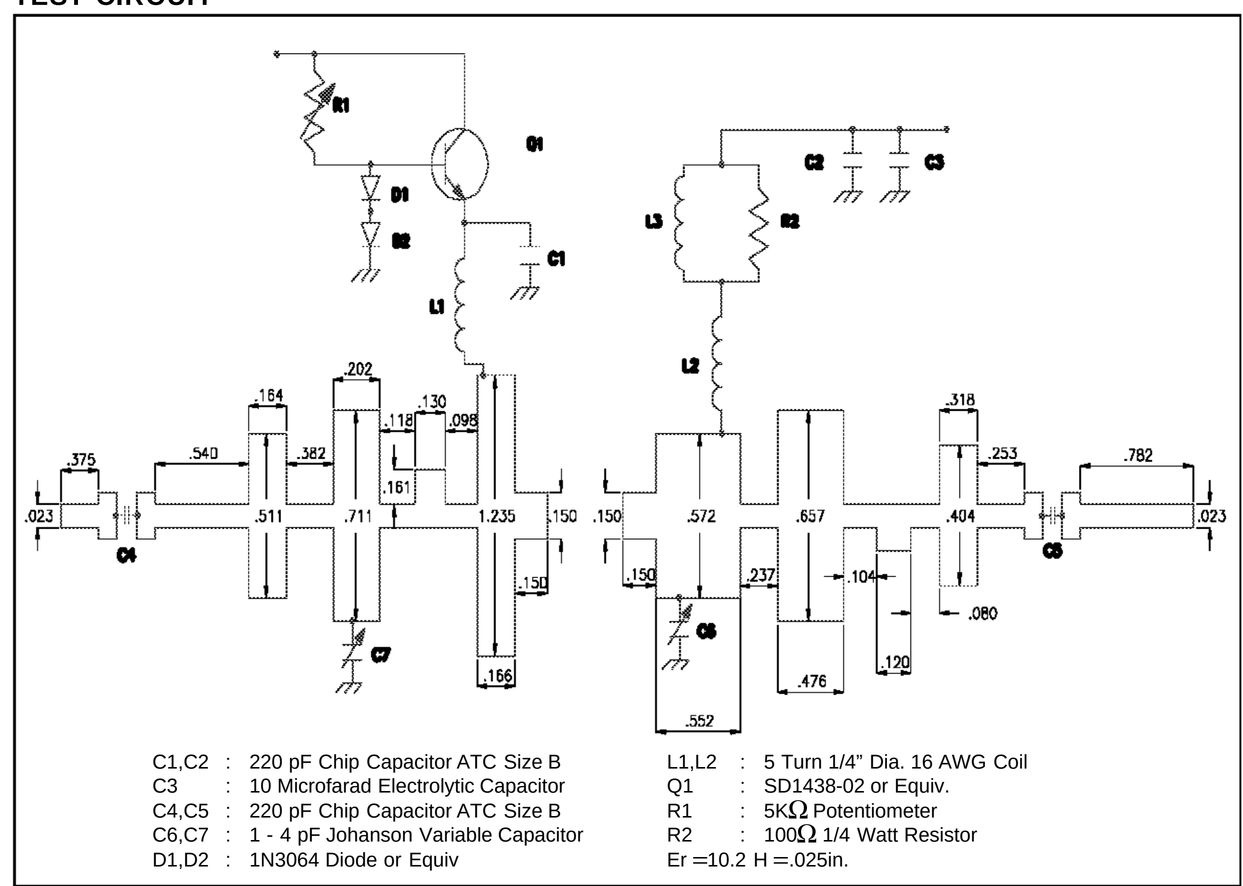


TYPICAL COLLECTOR LOAD IMPEDANCE



FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
850 MHz	2.4 + j 5.2	4.0 – j 1.3
870 MHz	2.6 + j 5.4	3.9 – j 2.3
900 MHz	3.2 + j 6.3	3.6 – j 2.6
930 MHz	4.1 + j 6.0	3.4 – j 2.4
960 MHz	4.7 + j 5.6	3.0 – j 3.0

TEST CIRCUIT



C1,C2	:	220 pF Chip Capacitor ATC Size B	L1,L2	:	5 Turn 1/4” Dia. 16 AWG Coil
C3	:	10 Microfarad Electrolytic Capacitor	Q1	:	SD1438-02 or Equiv.
C4,C5	:	220 pF Chip Capacitor ATC Size B	R1	:	5KΩ Potentiometer
C6,C7	:	1 - 4 pF Johanson Variable Capacitor	R2	:	100Ω 1/4 Watt Resistor
D1,D2	:	1N3064 Diode or Equiv	Er =10.2 H =.025in.		

PACKAGE MECHANICAL DATA

Ref. Dwg. No.: 12-0169

SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.078/1,98	.088/2,24	K	.105/2,67	.115/2,92
B	.120/3,05		L	.159/4,04	.175/4,45
C	.115/2,92	.125/3,18	M		.280/7,11
D	.580/14,73	.620/15,75	N	.395/10,03	.408/10,36
E	.395/10,03	.405/10,29			
F	.125/3,18				
G	.720/18,29	.730/18,54			
H	.970/24,64	.980/24,89			
I	.420/10,67	.430/10,92			
J	.002/0,05	.007/0,18			